

## AMENDMENTS TO THE CLAIMS

Claims 1-11 (canceled).

Claim 12 ( currently amended): A method of determining if an individual of interest has a cysteine deficiency, comprising the steps of:

1) isolating lymphocytes from said individual of interest and from more than one control individual;

2) providing an *N*-acetyl-L-cysteine cell culture medium (NAC medium) comprising;

a buffered, serum-free solution having a pH value from about 6.8 to about 7.6, said solution containing:

glucose;

a biologically utilizable form of pantothenic acid or choline;

at least one inorganic ion in a biologically utilizable form, wherein said ion is chloride ion, phosphate ion, calcium ion, magnesium ion, potassium ion, sodium ion, or iron ion;

cumene hydroperoxide, wherein said cumene hydroperoxide is present in a concentration of about 5  $\mu$ M to about 500  $\mu$ M;

deionized water,

*N*-acetyl-L-cysteine (NAC);

a mitogen wherein said mitogen stimulates said lymphocytes to grow; and

optionally, at least one of a supplemental nutrient in a biological utilizable form wherein said supplemental nutrient is:

- a) an L-amino acid;
- b) a vitamin; or
- c) at least one of pyruvate, adenine or inositol;

3) removing NAC from said cell culture medium thereby providing a NAC negative medium;

4) placing no more than half of said lymphocytes isolated from said individual of interest into NAC medium and into NAC negative medium;

5) placing no more than half of said lymphocytes isolated from said at least one control individual into NAC medium

and into NAC negative medium, said media other than the media used in step 4);

6) determining growth responses of all of said lymphocytes in steps 4) and 5), said growth response measured by <sup>3</sup>H-thymidine incorporation of said lymphocytes;

7) expressing said growth response of said lymphocytes from said individual of interest as the ratio of lymphocyte growth in NAC medium to lymphocyte growth in NAC negative medium;

8) expressing said growth response of said lymphocytes from said control individuals as an average ratio of lymphocyte growth in NAC medium to lymphocyte growth in NAC negative medium; and

9) comparing said lymphocyte growth response from said individual of interest to the average growth response of said control individuals, wherein if the ratio of said lymphocyte growth response from said individual of interest to said average control is greater than or equal to about 127%, said individual of interest has a cysteine deficiency.

Claims 13-15 (canceled).

Claim 16 (previously presented) The method of claim 12, wherein said *N*-acetyl-L-cysteine is present in a concentration of about 150 mM.

Claim 17 (previously presented) The method of claim 12, wherein said L-amino acid is selected from the group consisting of L-arginine, L-cysteine, L-glutamine, glycine, L-histidine, L-isoleucine, L-leucine, L-lysine, L-methionine, L-phenylalanine, L-serine, L-threonine, L-tryptophan, L-tyrosine, and L-valine.

Claim 18 (previously presented) The method of claim 12, wherein said vitamins are selected from the group consisting of biotin, folinic acid nicotinamide, nicotinic acid, riboflavin, thiamin, vitamin B<sub>6</sub>, and vitamin B<sub>12</sub>.

Claim 19 (previously presented) The method of claim 12, wherein at least one of said pyruvate, said adenine or said inositol supplements said cell culture medium at concentrations eliciting approximately a maximal response.